U.S. Environmental Protection Agency
Great Lakes National Program Office (GLNPO)
Significant Activities Report

On the Web at:
www.epa.gov/greatlakes

September 2004

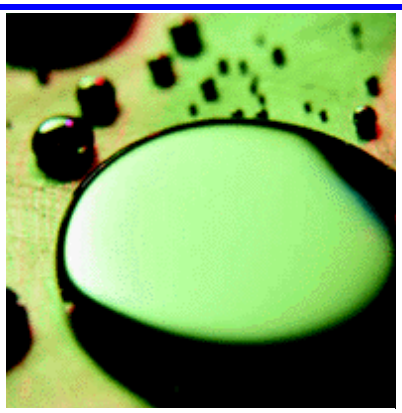
## IN THIS ISSUE:



## About Mercury

Every year, an estimated 60,000 children are born at risk of developmental deficits, including decreased school performance, as the result of exposure to methylmercury in the womb, usually stemming from their mother's consumption of contaminated fish. Methylmercury is the organic form of mercury that bioaccumulates in the environment. Exposure to elemental mercury vapor in indoor air as the result of household or workplace spills also poses a health threat. Elemental or inorganic mercury released into the environment as the result of human activities can be converted into methylmercury, and bioaccumulate up the food chain. Releases of mercury into the air eventually lead to contamination of water, because mercury deposits from the atmosphere onto land and water.

Mercury is a common element found naturally in a free state or mixed with ores or rocks. It is a volatile heavy metal that can exist in gas, liquid, or solid form, and is the only heavy metal that exists as a liquid at room temperature. Mercury has high electrical conductivity, alloys with other metals, and expands and contracts evenly with temperature. Due to these unique qualities, mercury has been used in thousands of industrial, agricultural, medical, and household applications.



Mercury is a metal that is a liquid at room temperature

As an element, mercury cannot be broken down, diluted, or entirely eliminated from the environment. Once deposited, it can be re-emitted back into the atmosphere to be re-deposited elsewhere. As mercury cycles between the atmosphere, land, and water, it undergoes a series of complex chemical and physical transformations.

Because of the recognized toxicity of mercury, industrial demand for the substance has declined significantly, due largely to the elimination of mercury in paints and pesticides, and the reduction of mercury in batteries. Nevertheless, mercury contamination continues to be one of the most frequent reasons for fish consumption advisories issued by States or Tribes.

For more information on mercury and efforts underway to reduce its use and emissions in

the Great Lakes, see the Great Lakes Binational Toxics Strategy Mercury Web Page at: http://www.epa.gov/Region5/air/mercury/binational.html

(Contact: Alexis Cain, 312-886-7018, cain.alexis@epa.gov)

## Lake Superior Mercury Issues

On September 9th and 10th, the Lake Superior Forum, the Lake Superior Task Force, and representatives of industry met in Duluth, Minnesota, to talk about ways to further reduce mercury exposure, use, and emissions in the Lake Superior Basin, especially from the utility, taconite, oil, pulp and paper, and municipal waste water treatment industrial sectors. U.S. and Canadian officials provided presentations on the status of their respective mercury regulatory structure, while industry representatives outlined some of their recent and impressive mercury-reduction initiatives. USEPA Air Division's Alexis Cain and GLNPO's Ted Smith and E.Marie Graziano presented an overview of U.S. mercury regulations. An industry/government workgroup was formed to design a basin-wide mercury reduction project for FY 2005.

Some common themes that emerged during the two-day session:

- the need for "early reduction credits" as an incentive;
- the need for a "level playing field" and more consistency (and a better communication) of applicable regulations;
- the reality that industry decisions are governed by tough economic times rather than environmental concerns;
- the need that successful projects and strategies be shared basinwide;
- the need for cleaner coal technologies;
- the need for more research on the taconite mining sector;

Cleaner coal technologies would reduce mercury emissions from coal-fired electric utilities

- the need to address global HQ sessions.

A volunteer group was formed to think of ideas for a possible basinwide project (such as a "collection" project or a "banning" project). The first meeting of this group will be scheduled in the near future.

(Contacts: Elizabeth LaPlante, 312-353-2994, laplante.elizabeth@epa.gov; Alexis Cain, 312-886-7018, cain.alexis@epa.gov; Ted Smith, 312-353-6571, smith.edwin@epa.gov; or E.Marie Graziano, 312-886-6034, graziano.emarie@epa.gov)

## International Perspectives

GLNPO's Todd Nettesheim participated in the Mercury Roundtable #18: "Mercury: International Perspectives" conference call on September 15th. The Mercury Roundtable is a regularly scheduled forum for discussing science and its role in affecting policy related to mercury. The Roundtable is a joint EPA and USGS effort that is open to all representatives of Federal, State, interstate, local, and tribal government agencies in the United States, Canada, and Mexico. The most recent Roundtable consisted of several presentations on recent mercury monitoring, modeling, and emission characterization efforts on a global scale.

Artisanal gold miners in Guinea
(photo courtesy of USAID)

Dr. Russell Bullock of EPA's Office of Research and Development delivered a presentation on "Global emissions and transport: What is known and unknown." Melissa Chan of DOE's National Energy Technology Laboratory delivered a presentation on mercury emissions inventory development in China. Dr. Dan Jaffe with the University of Washington-Bothell presented on the "Transport and chemical processing of mercury during long-range transport in the Pacific." Dr. Marcello M. Viega of the University of British Columbia (and a consultant to UNIDO) delivered a presentation on mercury emissions from artisanal gold miners.

(Contact: Todd Nettesheim, 312-353-9153, nettesheim.todd@epa.gov)

## Pollution Prevention Roundtable

GLNPO's Ted Smith participated in the Great Lakes Pollution Prevention Roundtable organization's Summer 2004 Roundtable, held in Columbus, Ohio on September 22nd to 24th. Presentation topics included pollution prevention at the Department of Defense, Energy Efficiency in Ohio, Green Buildings, pollution prevention in Transportation, pollution prevention in water, and Industry Case Studies of accomplishments using USEPA pollution prevention grant funds.

Two researchers whose work was funded by GLNPO grants made presentations:
Steve Brachman, of the University of Wisconsin Solid and Hazardous Waste Extension Center presented on efforts to get mercury amalgam out of waste water effluent in Milwaukee.

Dr. Mark Stone of the Great Lakes Dental Naval Research Institute (GLDNRI) showed a DVD of Best Management Practices for dental amalgam, co-produced by the GLNDRI and the American Dental Association (ADA). This DVD will be distributed to 45,000 dental offices in the Great Lakes basin by the ADA, through a grant from GLNPO. For a copy of the DVD, please contact Ted Smith (see below).

More information on the Roundtable meeting is available on the Web at: http://www.glrppr.org/columbus2004/

(Contact: Ted Smith, 312-353-6571, smith.edwin@epa.gov)

## River Raisin Sediments Sampled

From September 21st to 23rd, the *R/V Mudpuppy* was in Monroe, Michigan for a follow-up survey of PCB contamination in sediments below the federal navigation channel. A screening level study in 2003 by GLNPO and Michigan DEQ indicated elevated levels of PCBs below the federal navigation channel have the potential to be exposed during the Corps bi-annual maintenance dredging. This year's survey seeks to fill data gaps remaining from the 2003 study and to obtain data to evaluate the feasibility and cost of removing the contaminated ma-

terial during the Corps next scheduled dredging event in 2006. A total of 14 sediment cores were collected and analyzed for total PCBs and sediment grain size.

(Contact: Scott Cieniawski; cieniawski.scott@epa.gov; 312-3539184).

## Grand Cal Area Sediment Probed

The *R/V Mudpuppy*, USEPA GLNPO's sediment sampling vessel, was in East Chicago, Indiana from September 13th to 18th to provide field support to the U.S. Army Corps of Engineers. The GLNPO field team collected 500 gallons of sediment from four locations in the Indiana Harbor and Ship Canal using the vibracorer on the *Mudpuppy*. The sampling locations were previously identified as shoaled areas located primarily within the federal channel where the Corps will be dredging as part of the proposed navigational dredging of the Indiana Harbor and Canal, scheduled for Spring 2008. The sediment collected is to be used in a wastewater treatability study to support the design of a wastewater treatment plant for the sediment confined disposal facility which will contain sediment from the proposed navigational dredging.

(Contact: Mary Beth G. Ross, 312-886-2253, ross.marybeth@epa.gov)

## Cuyahoga River Symposium

GLNPO's Vicki Thomas, Dan O'Riordan, and Marcia Damato joined USEPA's Cleveland office's Dave Barna, Anne Marie Vincent, Mark Moloney, and Paul Novak, at the September 10th symposium "Investing in Healthy Streams Sustains Healthy Communities" held in Richfield, Ohio. The meeting was sponsored by the Cuyahoga River Remedial Action Plan. USEPA's Acting Assistant Administrator for Water, Ben Grumbles, delivered the luncheon keynote address. Vicki Thomas informed the symposium participants about the Great Lakes Executive Order. Others speakers at the well-attended symposium included David Ullrich, representing the International Association of Great Lakes and St. Lawrence Mayors, and a number of local mayors.

The upper Cuyahoga River flows through Ohio's only National Park, the Cuyahoga Valley National Park (photo courtesy of National Park Service)

(Contact: Dan O'Riordan, 312- 312-886-7981, oriordan.daniel@epa.gov)

## Upcoming Events

| 2004 | |
|---|---|
| October 6-8 | State of the Lakes Ecosystem Conference: Toronto, Canada |
| November 30 | Great Lakes Binational Toxics Strategy Stakeholder Forum: Chicago, IL |
| December 1 | Great Lakes Binational Toxics Strategy Integration Work Group Meeting: Chicago, IL |
| December 3 | Great Lakes Regional Collaboration Meeting: Chicago, IL |

We welcome your questions, comments or suggestions about this month's Significant Activities Report. To be added to or removed from the Email distribution of the Significant Activities Report, please contact Tony Kizlauskas, 312-353-8773, kizlauskas.anthony@epa.gov.